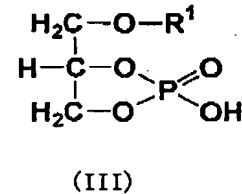
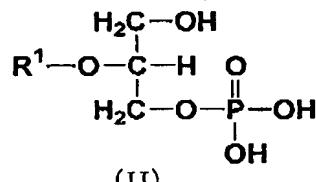
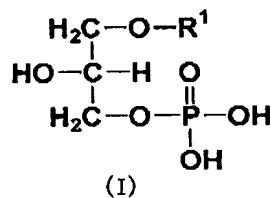


## CLAIMS

1. A method of screening a preventive and/or therapeutic substance for diseases in which LPA takes part, which comprises using an optionally labelled highly active LPA.

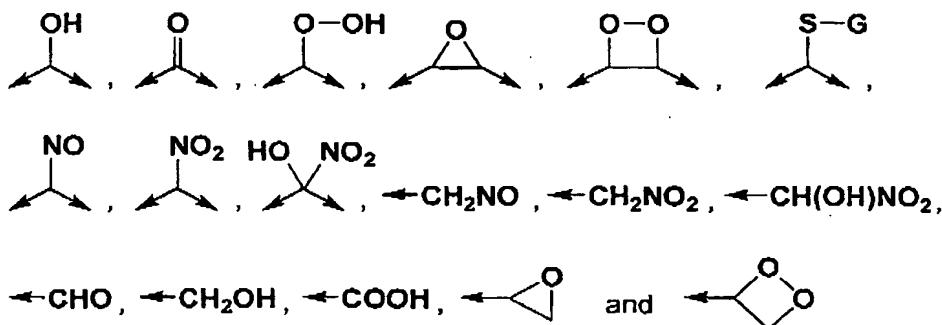
2. The method according to claim 1, wherein the highly active LPA is a compound represented by formula (I), (II) or (III):



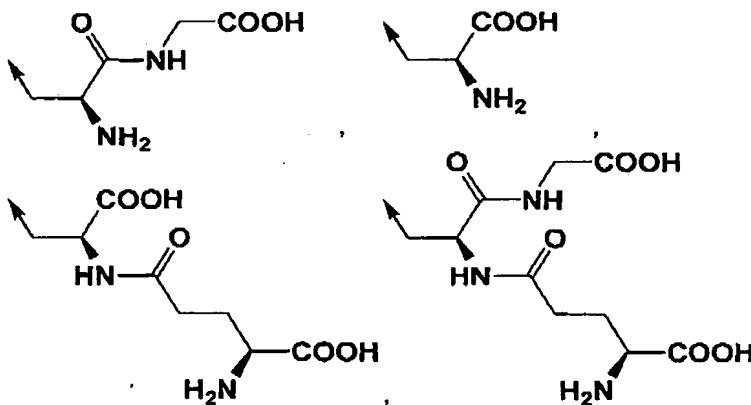
wherein  $\text{R}^1$  represents an aliphatic hydrocarbon group or an aliphatic hydrocarbon-carbonyl group which is oxidized, nitrated, nitrosated, nitrohydrylated and/or aminated, and wherein asymmetric carbon means R-configuration, S-configuration or a mixture thereof in any ratio,  
a salt thereof or a solvate thereof.

3. The method according to claim 2, wherein the number of carbon atom of main chain of  $\text{R}^1$  is 6 to 26.

4. The method according to claim 2, wherein  $\text{R}^1$  represents an aliphatic hydrocarbon group or an aliphatic hydrocarbon-carbonyl group which contains one or more part(s) selected from the following group Q as substructure; the group Q represents the group consisting of



wherein arrowhead represents a binding site(s);  
G represents:



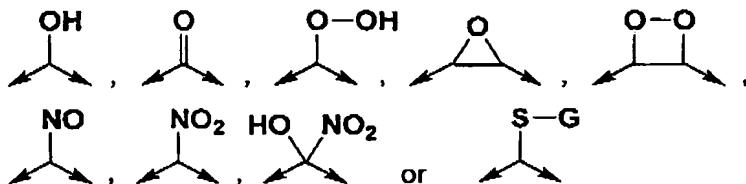
wherein arrowhead represents a binding site(s),  
or a hydrogen atom, and  
wherein asymmetric carbon means R-configuration, S-configuration or a mixture thereof in any ratio.

5. The method according to claim 4, wherein R<sup>1</sup> represents:



wherein arrowhead represents a binding site(s); Y represents carbonyl or methylene; p and q each independently represents 0 or an integer of 1 to 7; E<sup>1</sup> and E<sup>2</sup>

each independently represents C1-4 alkylene, C2-4 alkenylene or a bond; A represents a bond,



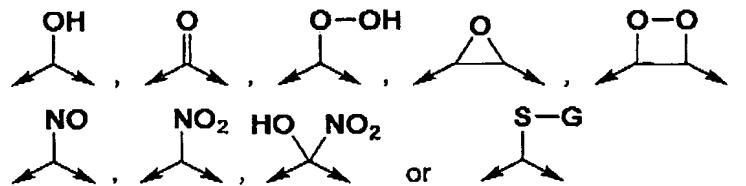
wherein arrowhead represents a binding site(s);

G has the same meaning as in claim 4, and

wherein asymmetric carbon means R-configuration, S-configuration or a mixture thereof in any ratio;

n represents an integer of 1 to 6 and when n represents 2 or more, plural E<sup>1</sup>, plural E<sup>2</sup> and plural A are the same or different, and

wherein at least one of A in R<sup>1</sup> represents:

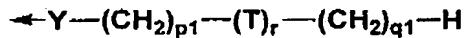


wherein arrowhead represents a binding site(s);

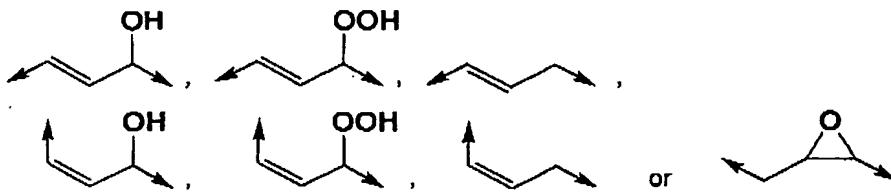
G has the same meaning as in claim 4, and

wherein asymmetric carbon means R-configuration, S-configuration or a mixture thereof in any ratio.

6. The method according to claim 5, wherein R<sup>1</sup> represents:



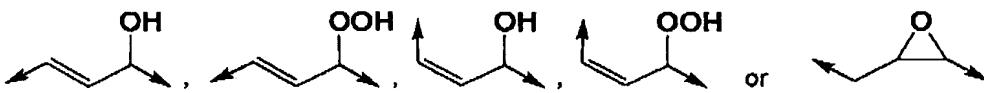
wherein arrowhead represents a binding site(s); Y represents carbonyl or methylene; p1 and q1 each independently represents an integer of 1 to 7; T represents



wherein arrowhead represents a binding site(s), and wherein asymmetric carbon means R-configuration, S-configuration or a mixture thereof in any ratio;

r represents an integer of 1 to 5 and when r represents 2 or more, plural r are the same or different, and

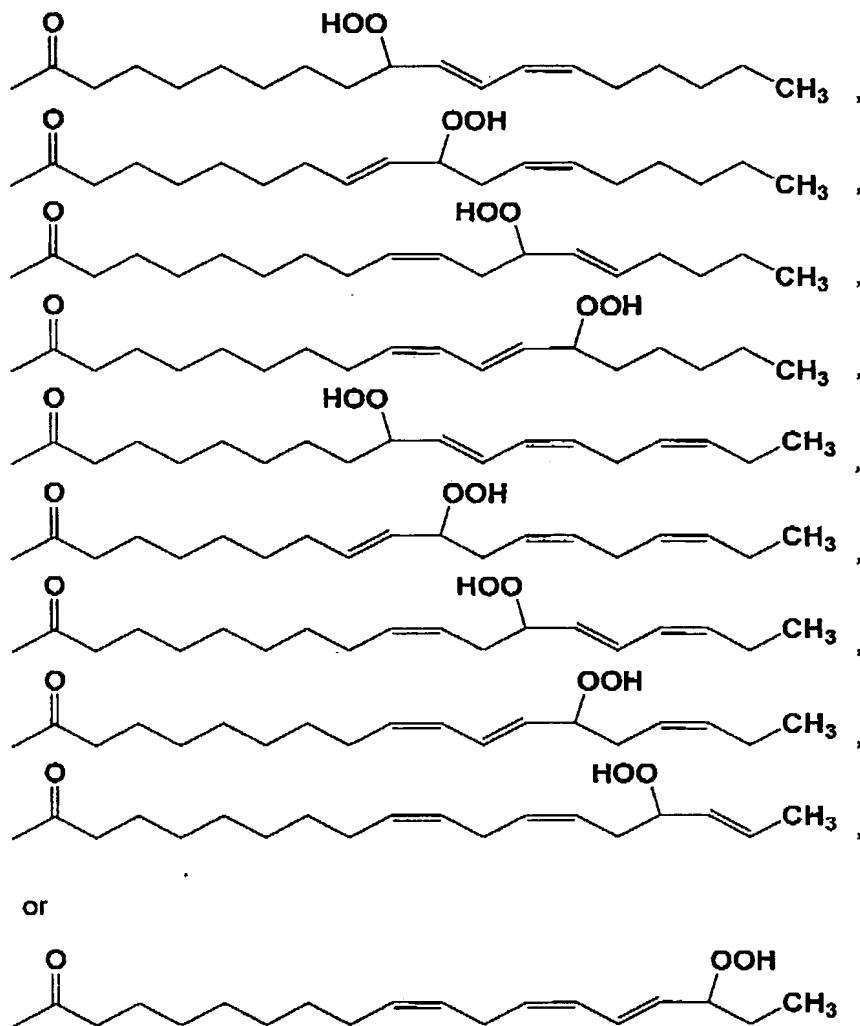
wherein at least one of T in R<sup>1</sup> represents:



wherein arrowhead represents a binding site(s), and wherein asymmetric carbon means R-configuration, S-configuration or a mixture thereof in any ratio.

7. The method according to claim 6, wherein R<sup>1</sup> represents a C18 aliphatic hydrocarbon-carbonyl group which contains 2 to 3 double bonds and is substituted with 1 hydroperoxy group.

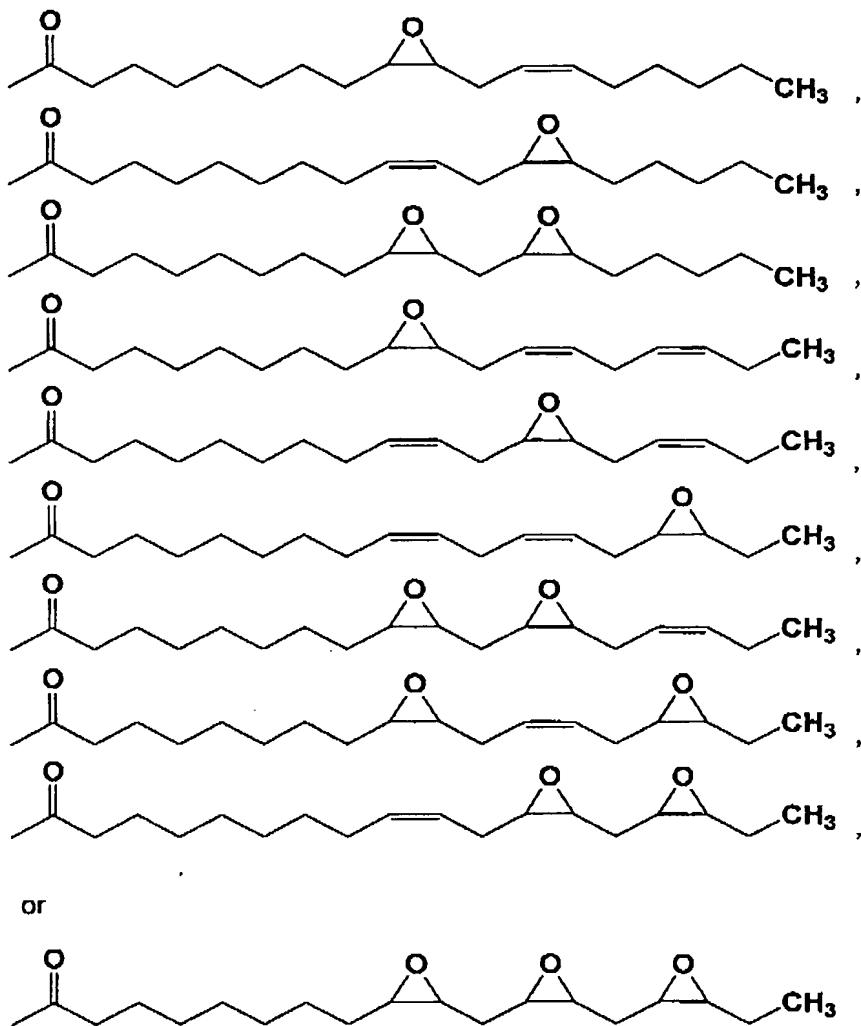
8. The method according to claim 7, wherein R<sup>1</sup> represents:



wherein asymmetric carbon means R-configuration, S-configuration or a mixture thereof in any ratio.

9. The method according to claim 6, wherein R<sup>1</sup> represents a C18 aliphatic hydrocarbon-carbonyl group which contains 0 or 1 to 2 double bond(s) and is substituted with 1 to 3 epoxy group(s).

10. The method according to claim 9, wherein R<sup>1</sup> represents:



wherein asymmetric carbon means R-configuration, S-configuration or a mixture thereof in any ratio.

11. The method according to claim 1, wherein the disease in which LPA takes part is urinary disease, central nervous disease, inflammatory disease, circulatory disease, cancer, diabetes, immune system disorder or alimentary disease.

12. The method according to claim 11, wherein the urinary disease is urinary disturbance.

13. A screening kit for a preventive and/or therapeutic substance for diseases in which LPA takes part, which comprises using an optionally labelled highly active LPA.

14. An agent for prevention and/or treatment of urinary disease, central nervous disease, inflammatory disease, circulatory disease, cancer, diabetes, immune system disorder or alimentary disease, which comprises the compound, the salt thereof, the solvate thereof or the prodrug thereof obtained by using the method depicted in claim 1 and/or the kit depicted in claim 13.

15. The agent according to claim 14, which is the agent for prevention and/or treatment of urinary disturbance.

16. An agent for prevention and/or treatment of urinary disturbance which comprises one or more of selected from the group consisting of  $\alpha$ 1-antagonist, anticholinergic drug, 5 $\alpha$ -reductase inhibitor and antiandrogen drug in combination with the compound, the salt thereof, the solvate thereof or the prodrug thereof obtained by using the method depicted in claim 1 and/or the kit depicted in claim 13.

17. The method according to claim 1, which comprises using both (1) the optionally labelled highly active LPA and (2) a LPA receptor protein, a partial peptide thereof, or a salt thereof.

18. The method according to claim 17, wherein the LPA receptor is EDG-2, EDG-4, EDG-7 or GPR23.

19. The method according to claim 17, which comprises comparing (1) the measured increase of intracellular concentration of calcium ion of the cell after contacting (a) the optionally labelled highly active LPA and (b) the cell which comprises the LPA receptor protein, to (2) the one after contacting (a) the optionally labelled highly active LPA, (b) the cell which comprises the LPA receptor protein and (c) the testing compound.

20. The method according to claim 17, which comprises comparing (1) the amount of the labelled highly active LPA which is bound to the LPA receptor protein,

the partial peptide thereof, or the salt thereof after contacting (a) the labelled highly active LPA and (b) the LPA receptor protein, the partial peptide thereof, or the salt thereof, to (2) the one after contacting (a) the labelled highly active LPA, (b) the LPA receptor protein, the partial peptide thereof, or the salt thereof and (c) the testing compound.

21. The method according to claim 17, which comprises comparing (1) the amount of the labelled highly active LPA which is bound to the cell after contacting (a) the labelled highly active LPA and (b) the cell which comprises the LPA receptor protein, to (2) the one after contacting (a) the labelled highly active LPA, (b) the cell which comprises the LPA receptor protein and (c) the testing compound.

22. The method according to claim 17, which comprises comparing (1) the amount of the labelled highly active LPA which is bound to the membrane fraction of the cell after contacting (a) the labelled highly active LPA and (b) the membrane fraction of the cell which comprises the LPA receptor, to (2) the one after contacting (a) the labelled highly active LPA, (b) the membrane fraction of the cell which comprises the LPA receptor and (c) the testing compound.

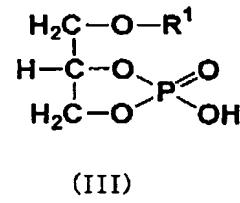
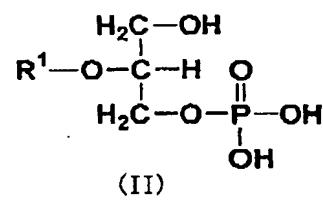
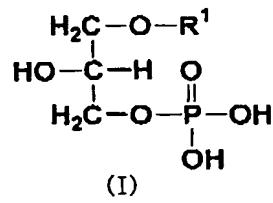
23. An antibody against highly active LPA.

24. The antibody according to claim 23, which is a neutralizing antibody for inactivating signal transduction of LPA receptor.

25. A diagnostic product which comprises the antibody depicted in claim 23, for diseases in which LPA takes part.

26. A process for production of a preventive and/or therapeutic substance for diseases in which LPA takes part, which comprises the process of screening a compound using the method of screening depicted in claim 17.

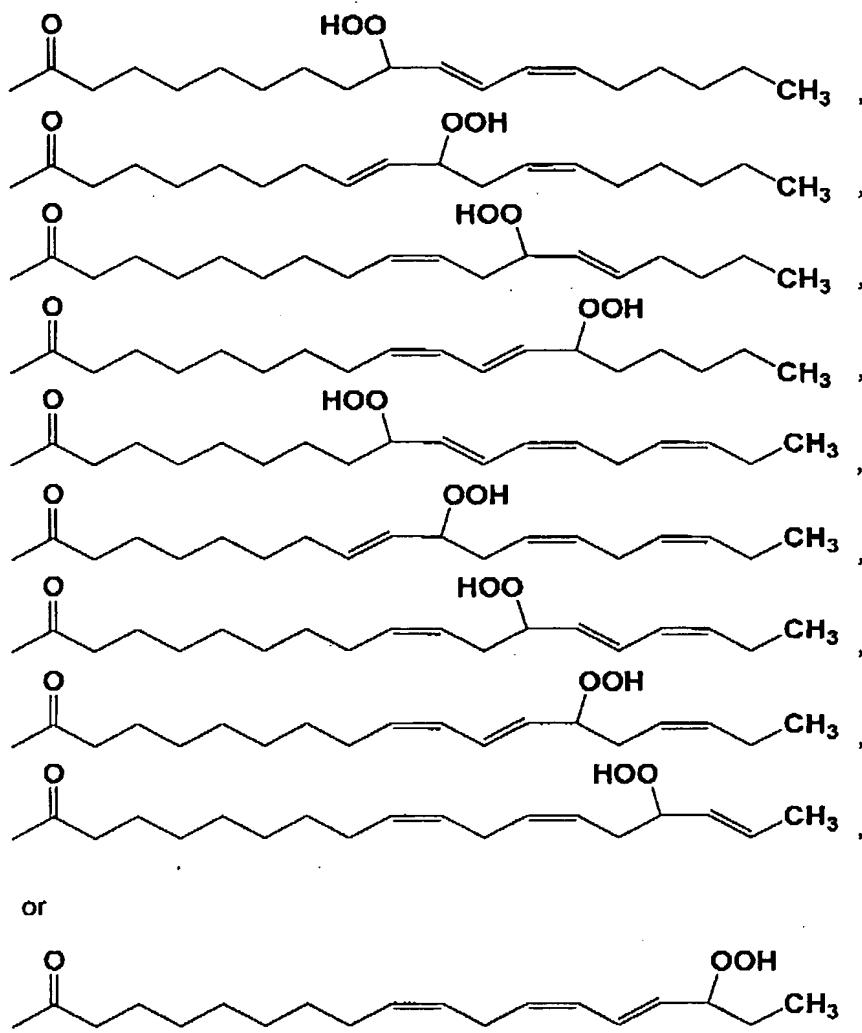
27. A chemically or enzymatically synthesized compound represented by formula (I), (II) or (III):



wherein R<sup>1</sup> represents an aliphatic hydrocarbon group or an aliphatic hydrocarbon-carbonyl group which is oxidized, nitrated, nitrosated, nitrohydrylated and/or aminated, and wherein asymmetric carbon means R-configuration, S-configuration or a mixture thereof in any ratio,  
 a salt thereof or a solvate thereof.

28. The compound according to claim 27, wherein R<sup>1</sup> represents a C18 aliphatic hydrocarbon-carbonyl group which contains 2 to 3 double bonds and is substituted with 1 hydroperoxy group.

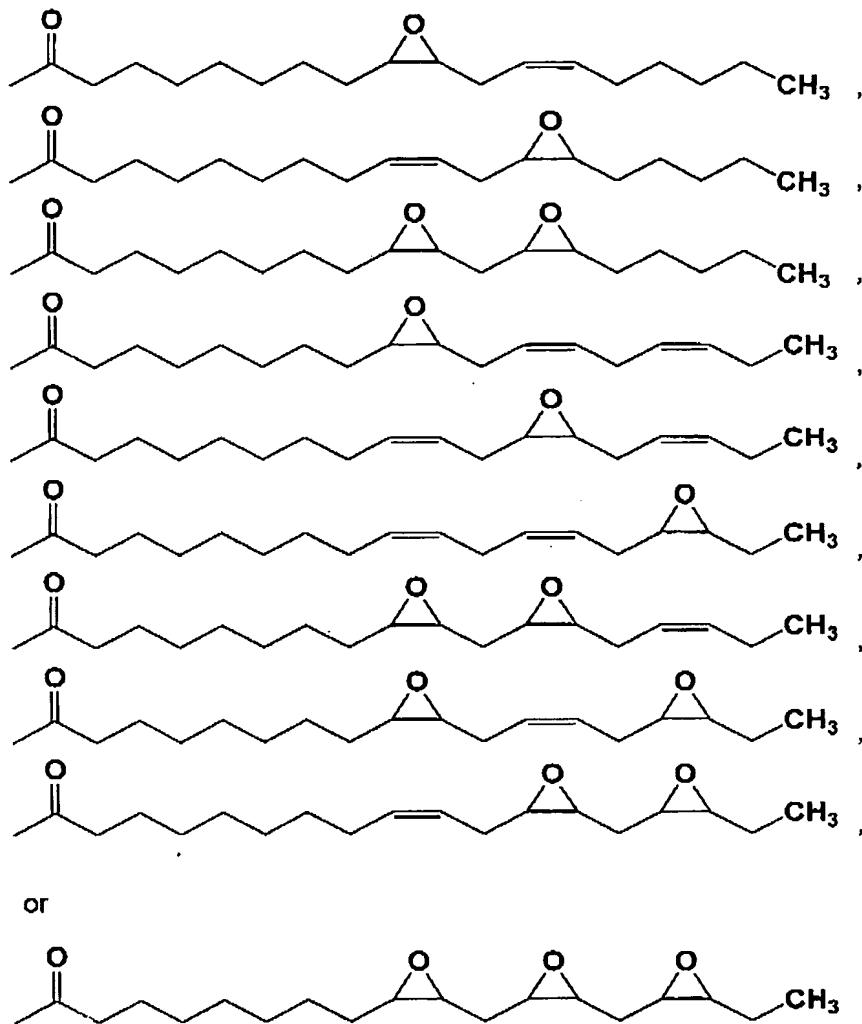
29. The compound according to claim 28, wherein R<sup>1</sup> represents:



wherein asymmetric carbon means R-configuration, S-configuration or a mixture thereof in any ratio.

30. The compound according to claim 27, wherein R<sup>1</sup> represents a C18 aliphatic hydrocarbon-carbonyl group which contains 0 or 1 to 2 double bond(s) and is substituted with 1 to 3 epoxy group(s).

31. The compound according to claim 30, wherein R<sup>1</sup> represents:



wherein asymmetric carbon means R-configuration, S-configuration or a mixture thereof in any ratio.